

# HEAVY LOSS OF SUGAR STOPPED

Chemists Perfect Process of Protecting Raw Product From Mold and Bacteria.

## PREY ON SWEETENING FACTOR

At Least \$1,500,000 Worth of Sugar Destroyed Yearly by Tiny, Greedy Organisms—70,000,000 Pounds Is Estimate.

Chicago, Ill.—More sugar will be available for everybody through the discovery of a process of keeping it from being injured by molds and bacteria.

Fully one per cent of the Cuban crop, or about 70,000,000 pounds of sugar a year and worth at least \$1,500,000, it is estimated, has been destroyed by the tiny, greedy organisms which compete with the sweet tooth of mankind. As the per capita consumption of sugar in the United States is approximately 81.84 pounds annually the amount hitherto consumed by the 87,000 persons for a twelve month period. This would keep the sugar bowls of a large city full. Counting each family as five persons, 175,000 of such groups could be kept sweet tempered during this period from the supply which has been wasted by the invisible hordes.

Mr. Nicholas Kopeloff and Mrs. Lilian Kopeloff, bacteriologist and assistant bacteriologist at the Louisiana sugar experiment station in New Orleans, and members of the American Chemical society, have just completed a bulletin on the method of preventing the molds and bacteria from wresting sweet solace of the beet and cane from mortals.

### Loses Sweetness.

Sugar loses its sweetness because molds consume the sucrose, which is its sweetening factor. Although the amount thus lost may be only a fraction of one per cent, and far too slight to be detected by the senses of taste or smell in many cases, it is easily determined by the polariscope, an instrument especially designed for measuring the amount of sucrose present. When sugar deteriorates not only does the polariscope detect the difference, but anyone who is sufficiently observant will note that it will actually take a larger spoonful to give the same sweetening power. Thus, if a barrel of raw sugar should be kept through the summer months and it is infected with harmful micro-organisms, it might be necessary to use an extra half-spoonful at the end of the summer to get the same sweetening power that could be obtained before deterioration took place. As all sugar is sold strictly on the polariscope basis, even small losses aggregate huge sums.

The usual source of these molds is the air, which contains millions of micro-organisms at rest and in circulation. Each individual mold, if it falls on an object which can supply it with sufficient food, such as sugar, can reproduce 300,000 more individuals of the same species in less than a week. This reproduction, however, can only take place in the presence of sufficient moisture, otherwise the organisms lie dormant. Cane sugar primarily undergoes such losses by deterioration in transportation or storage, mainly due to the absorption of moisture by sugar in damp weather or humid climates.

For example, sugars made in Cuba are stored in the hold of a vessel, often with insufficient ventilation, which causes them to "sweat." While coming from a tropical climate into cooler water the moisture condenses on the surface of the sugar. This also occurs when sugar is stored for any length of time, especially at high temperature, as in refineries, where some is melted up at once and the re-

mainder is held in storage for varying periods, as dictated by business needs.

### Can Be Prevented.

Having identified the injurious micro-organisms, Doctor and Mrs. Kopeloff developed a method by which the quality of a given sugar might be determined in this respect. By simply consulting a chart after a preliminary analysis, one may now find out whether or not a given sugar will deteriorate or lose its sweetness in storage. The sugars which are unsafe to keep may be melted up first, the sounder sugars being held in storage with safety.

Doctor and Mrs. Kopeloff, by making bacteriological examinations at every stage of the sugar-making process, have found that sugar deterioration can be prevented by substituting dry or super-heated steam for water in the final process of washing sugar in the drums in which sugar is dried. These centrifugals, as they are called, in their whirling suck up air from the floor which may be contaminated with germs. Also, it is common practice to make the color of the sugar lighter by washing the crystals with water, which may be contaminated with molds and bacteria.

In the new process, it is shown that dry steam is successful in killing over 99 per cent of these avid molds and bacteria.

While the practice of steaming sugars is not a new one, the results are shown to have a direct practical value in eliminating losses which have been a considerable factor in the American bill for sweets.

## RADIO GUIDES SHIPS IN FOG

Finders of Naval Stations On Shore Give Angle, Mathematics Does Rest.

### WAR NECESSITY MOTHERED IT

Navigator Who Wishes to Know His Latitude and Longitude Sends Out Wireless Message and Listening Stations Give Bearings.

New York.—Fogs, clouds and storms are losing their terrors for naval men. In the not very distant past a ship that could navigate when the sun was hidden became the subject of wild seafaring tales, but the radio direction finder has eliminated many of the perils due to the absence of the sun. Today a navigator who wishes to know his latitude and longitude has only to send the following wireless message: "This is the (ship's name). Where am I?" And the data supplied by the various listening stations will give him his bearings. The wireless direction finder is not a new device—finders were patented as long ago as 1907—but war developments have emphasized the value of the instrument for general navigation, says a writer in the New York Evening Post.

It consists of a loop of wire attached to receiving machines. When messages are being received the waves set up a current in the two sides of the loop. If the waves strike both sides of the coil equally there is no difference in voltage. But when the waves strike the coil in such a manner that there is a difference in voltage between the two sides of the coil the receiving machines indicate the extent of this difference. By making mathematical calculations based on this difference it is possible to determine the direction of the ship which is sending

### He Wouldn't Stop Work for Wedding.

Detroit.—Devotion to duty prevented Nicholas Alexander, cook, from taking an hour off to get married.

His fiancée, Isabelle M. Sahay-caw, applied at the county clerk's office for a marriage license and, in response to the clerk's question as to why the bridegroom-to-be had not come, she said Nicholas was too busy. She said further that they had agreed to marry a year ago, but they had a quarrel and Nicholas tore up the license he had taken out.

After long and mature deliberation Isabelle came to the conclusion that she had been wrong and that if she did not admit it she ran a good chance of losing Nicholas forever.

She went to him in a penitent mood and found him receptive, but on one point he was adamant. He would not leave his work for a minute to get married, and if she wanted to become his wife she had to take out the marriage license, engage a minister and bring him to the kitchen where the ceremony was to be performed. They were married.

### Rooster Just Like Mother.

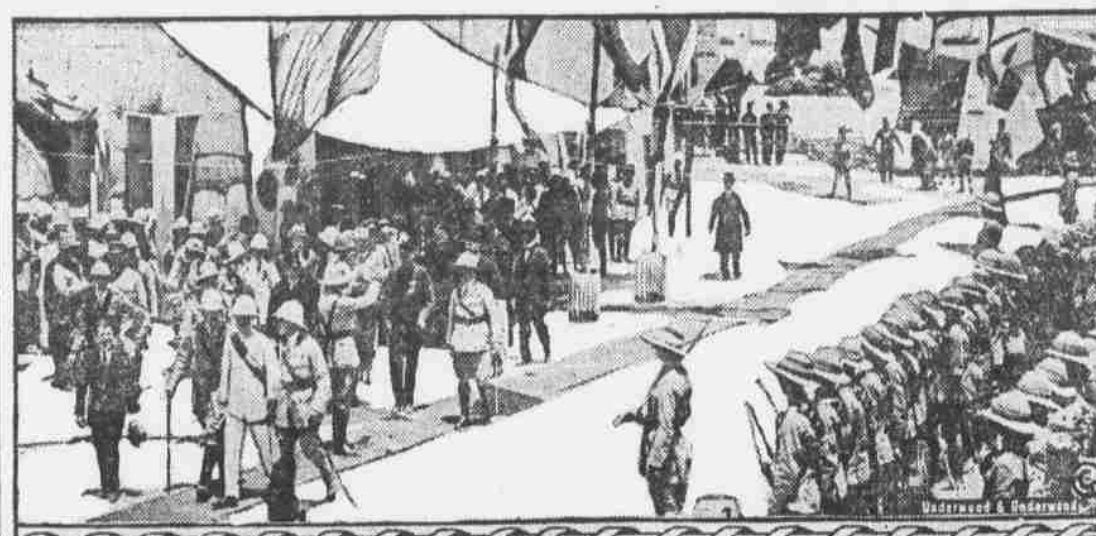
Winsted, Conn.—A yearling Rhode Island Red rooster owned by Elmer Robbins is brooding a number of chickens that weigh from one and a half to two pounds each. The young rooster also fills a mother's role by calling the chicks when he uncovers worms. At night the chickens huddle beneath his wings.

## Jazz Kings of the Atlantic Fleet



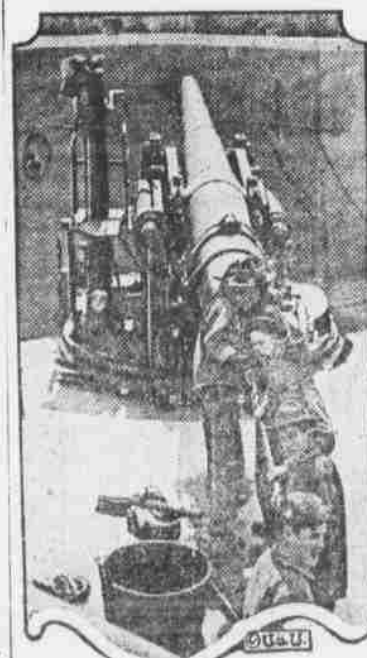
These members of the band of the battleship Delaware have made a reputation as the "jazz kings" of the Atlantic fleet.

## Palestine Receives Its High Commissioner



The governors of Jaffa and Jerusalem escorting Sir Herbert Samuel, the new British high commissioner of Palestine, on his arrival at Jaffa.

### LOADING FOR A SALUTE



Loading a 6-inch rifle at Fishers' Island, just a few seconds before it fired a salute in honor of the Atlantic fleet.

### TENNIS CHAMPION



William T. Tilden II of Philadelphia, who defeated William M. Johnston of San Francisco in the finals of the national tennis championship tournament at Forest Hills, L. I. Tilden won the world championship at Wimbledon, England this summer. He is now undisputed champion of the world.

### Another Use for Hands.

Blondine—I understand Gerty Glidgad gave Bennie Beanbrough the mitten.

Brunetta—I am surprised. "Why?" "I saw them holding hands the other evening." "That was the trouble." "Doesn't Gerty like to hold hands?" "Yes, but she likes a man who lets go long enough to dig down into his pockets once in a while."

### Just Going Home, Not to a Fire



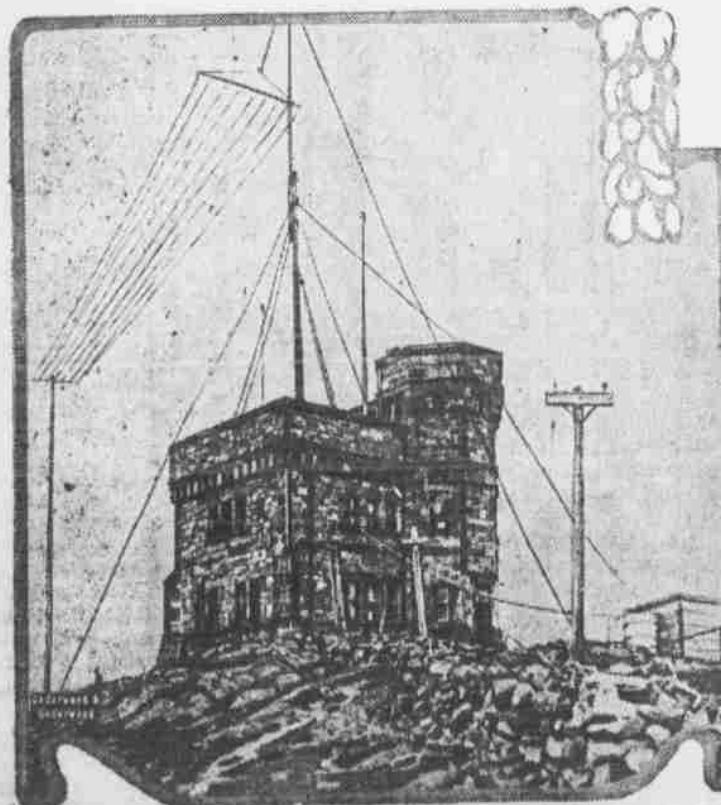
Because of the street car strike in New York the workers who live in Brooklyn borough are having a hard time getting back to their homes after work. These girls, who are employed in the municipal building, Manhattan, commandeered a fire hose truck to take them home after work. They avoided the rush and had a comfortable ride.

### Last Photo of the Former Czar



This is the last photograph made of the late czar of Russia and shows him at Ekaterinburg, Siberia, sawing wood with Yankel Yurofsky, commandant of the reds guarding the captured royal family. The czar was murdered about a week after this photograph was made, and Yurofsky is charged with responsibility for the slaughter of the royal family.

### Heard Wireless Phone Talk in Europe



This is the wireless telephone station on Signal Hill, St. John's, N. F., in which operators recently heard a wireless phone conversation that was being carried on in Europe.